Can you tile the plane without repeating a shape
Yes
a new is a shape that's different in at least one angle or ratio between side lengths there is an infinite amount of these and an infinite amount with a hole that is perfectly the shape of your current plain so here's the plan step
1 put down some shape step
2 surround shape with a shape that is different
3 go to step 2

Let's say you have a tetrahedron and each edge of the tetrahedron has to be connected to at least one dot what is the difference of the dots compared to the # vertices
1(it doesn't matter which one you remove)
But what if we make a super tetrahedron (5 tetrahedrons in this shape)

Now how many?
4 (one for each normal tetrahedron verticy)
O.K but what if we instead of using tetrahedrons we use super tetrahedron to make a super super tetrahedron
No idea, but probably 4

https://docs.google.com/spreadsheets/d/1mRxBiEqWbfIndgXowpfXYWWpQ6rxWVLqGP1BMbrJRj0/edit?gid=0#gid=0
1,2,4,8,16,32,64,128,256,512,1024,2048,4096,8192,16384,32768, 65536,131071 isn't in the OEIS

There are graphs where you can visit each cell precisely once there are graphs where you can visit each cell precisely twice. Are there any graphs where you can visit each cell once but not twice?